

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (withdrawn): A dispersion-compensated optical fiber, which, when operated in a wavelength range from 1.53 μm to 1.63 μm , exhibits the following:
 - a bending loss is 5 dB/m or lower with a 20 mm bending diameter,
 - a wavelength dispersion is -120 ps/nm/km or lower,
 - an absolute value of the wavelength dispersion per a unit loss is 200 ps/nm/dB or higher,
 - a cut-off wavelength for used length and used condition is 1.53 μm or lower,
 - an outer diameter of a cladding is 80 μm to 100 μm ,
 - an outer diameter of a coating is 160 μm to 200 μm , and
 - a viscosity of a surface of a coating resin is 10 gf/mm or lower.
2. (withdrawn): The dispersion-compensated optical fiber according to Claim 1 wherein the viscosity of the surface of the coating resin of the dispersion-compensated optical fiber is 1 gf/mm or lower.
3. (withdrawn): The dispersion-compensated optical fiber according to Claim 1 wherein said coating includes at least

a first coating layer disposed on an outer periphery of the cladding, having a Young's modulus of 0.15 kgf/mm^2 and a thickness of about $20 \text{ }\mu\text{m}$ to $30 \text{ }\mu\text{m}$, and

a second coating layer disposed on an outer periphery of the first coating layer, having a Young's modulus of 50 kgf/mm^2 , and a thickness of about $15 \text{ }\mu\text{m}$ to $30 \text{ }\mu\text{m}$.

4. (currently amended): A ~~dispersion-compensated~~dispersion compensating optical fiber, which, when operated in at least a wavelength which is selected from $1.53 \text{ }\mu\text{m}$ to $1.63 \text{ }\mu\text{m}$, exhibits the following:

a bending loss of 5 dB/m or lower with a 20-mm bending diameter, a wavelength dispersion of -120 ps/nm/km or lower, an absolute value of the wavelength dispersion per a unit loss of 200 ps/nm/dB or higher, a cut-off wavelength for used length and used condition of $1.53 \text{ }\mu\text{m}$ or lower, an outer diameter of a cladding of $80 \text{ }\mu\text{m}$ to $100 \text{ }\mu\text{m}$, an outer diameter of a coating of $160 \text{ }\mu\text{m}$ to $200 \text{ }\mu\text{m}$, said dispersion compensating, optical fiber comprising:

a center core section;

an intermediate core section, disposed on the outer periphery of the center core section;

a ring core section, disposed on the outer periphery of the intermediate core section; and

a cladding, disposed on the outer periphery of the ring core section;

wherein

the relative refractive index difference of the center core section with respect to the cladding is about 1.6% to 2.6% ~~greater than that of the cladding;~~

the relative refractive index difference of the intermediate core section with respect to the cladding is about 0.30% to 1.4% ~~smaller than that of the cladding~~;

the relative refractive index of the ring core section with respect to the cladding is about 0.30% to 1.0% ~~greater than that of the cladding~~;

the ratio of the outer radius of the intermediate core section to the outer radius of the center core section is about 1.5 to 3.5;

the ratio of the outer radius of the ~~intermediate-ring~~ core section to the outer radius of the ~~ring-intermediate~~ core section is about 1.2 to 2.0, and

the radius of the core is about 4 μm to 8 μm .

5. (withdrawn): dispersion-compensated optical fiber, comprising:

a center core section;

an intermediate core section, disposed on the outer periphery of the center core section;

and

a cladding, formed on the outer periphery of the intermediate core section; wherein

the refractive index of the center core section is about 1.6% to 2.6% greater than that of the cladding;

the refractive index of the intermediate core section is about 0.30% to 1.4% smaller than that of the cladding;

the ratio of the outer radius of the intermediate core section to the outer radius of the center core section is about 1.5 to 3.5;

the ratio of the outer radius of the intermediate core section to the outer radius of the ring core section is about 1.2 to 2.0; and

the radius of the core is about 4 μm to 8 μm .

6. (withdrawn): The dispersion-compensated optical fiber according to any one of claims 1, 2, 3, and 10, wherein, when operated in a wavelength range from 1.53 μm to 1.57 μm , a quotient, which is obtained by dividing the dispersion slope by the wavelength dispersion, is about 0.0026 nm^{-1} to 0.010 nm^{-1} .

7. (withdrawn): The dispersion-compensated optical fiber according to any one of claims 1, 2, 3, and 10, wherein, when operated in a wavelength range from 1.53 μm to 1.57 μm , a quotient, which is obtained by dividing the dispersion slope by the wavelength dispersion, is about 0.0026 nm^{-1} to 0.041 nm^{-1} .

8. (withdrawn): The dispersion-compensated optical fiber according to any one of claims 1, 2, 3, and 10, wherein, when operating in a wavelength range from 1.57 μm to 1.63 μm , a quotient, which is obtained by dividing the dispersion slope by the wavelength dispersion, is about 0.0022 nm^{-1} to 0.010 nm^{-1} .

9. (withdrawn): The dispersion-compensated optical fiber according to any one of claims 1, 2, 3, and 10, wherein, when operating in a wavelength range from 1.57 μm to 1.63 μm , a quotient, which is obtained by dividing the dispersion slope by the wavelength dispersion, is about 0.0022 nm^{-1} to 0.0035 nm^{-1} .

10. (withdrawn): The dispersion-compensated optical fiber according to claim 2,
wherein:

a Young's modulus of a first coating layer, which is disposed on an outer periphery of the cladding is about 0.15 kgf/mm^2 ,

a thickness of the first coating layer is about $20 \text{ }\mu\text{m}$ to $30 \text{ }\mu\text{m}$,

a Young's modulus of a second coating layer, which is disposed on an outer periphery of the first coating layer, is about 50 kgf/mm^2 , and

a thickness of the second coating layer is about $15 \text{ }\mu\text{m}$ to $30 \text{ }\mu\text{m}$.

11. (currently amended): The ~~dispersion-compensated~~ dispersion compensating optical fiber according to claim 4, wherein, when operated in at least a wavelength which his selectedrange from $1.53 \text{ }\mu\text{m}$ to $1.63 \text{ }\mu\text{m}$:

atthe bending loss is about 5 dB/m or lower when it is wound by a 20 mm bending diameter,

atthe wavelength dispersion is about -120 ps/nm/km or lower,

~~an~~the absolute value of the wavelength dispersion per a unit loss is about 200 ps/nm/dB or higher,

atthe cut-off wavelength for used length and used condition is about $1.53 \text{ }\mu\text{m}$ or lower,

~~an~~the outer diameter of ~~a~~the cladding is about $80 \text{ }\mu\text{m}$ to $100 \text{ }\mu\text{m}$,

~~an~~the outer diameter of ~~a~~the coating is about $160 \text{ }\mu\text{m}$ to $200 \text{ }\mu\text{m}$, and

a viscosity of a surface of a coating resin is about 10 gf/mm or lower.

12. (currently amended): The ~~dispersion-compensated~~dispersion compensating optical fiber according to claim 4, wherein ~~the~~a viscosity of ~~the~~an outer surface of the coating resin of the ~~dispersion-compensated~~dispersion compensating optical fiber is about ~~10~~ 10 gf/mm or lower.

13. (currently amended): The ~~dispersion-compensated~~dispersion compensating optical fiber according to claim 4, wherein:

a Young's modulus of a first coating layer, which is disposed on an outer periphery of the cladding, is about 0.15 kgf/mm² or lower,

a thickness of the first coating layer is about 20 μm to 30 μm,

a Young's modulus of a second coating layer, which is disposed on an outer periphery of the first coating layer, is about 50 kgf/mm² or higher, and

a thickness of the second coating layer is about 15 μm to 30 μm.

14. (withdrawn): The dispersion-compensated optical fiber according to claim 5, wherein, in a wavelength range from 1.53 μm to 1.63 μm:

a bending loss is about 5 dB/m or lower when it is wound by a 20 mm bending diameter,

a wavelength dispersion is about -120 ps/nm/km or lower,

an absolute value of the wavelength dispersion per a unit loss is about 200 ps/nm/dB or higher,

a cut-off wavelength for used length and used condition is about $1.53\text{ }\mu\text{m}$ or lower,

an outer diameter of a cladding is about $80\text{ }\mu\text{m}$ to $100\text{ }\mu\text{m}$,

an outer diameter of a coating is about $160\text{ }\mu\text{m}$ to $200\text{ }\mu\text{m}$, and

a viscosity of a surface of a coating resin is about 10 gf/mm or lower.

15. (withdrawn): The dispersion-compensated optical fiber according to claim 5,
wherein the viscosity of the surface of the coating resin of the dispersion-compensated optical
fiber is about 1 gf/mm or lower.

16. (withdrawn): The dispersion-compensated optical fiber according to claim 5,
wherein:

a Young's modulus of a first coating layer, which is disposed on an outer periphery of the
cladding, is about 0.15 kgf/mm^2 ,

a thickness of the first coating layer is about $20\text{ }\mu\text{m}$ to $30\text{ }\mu\text{m}$,

a Young's modulus of a second coating layer which is disposed on an outer periphery of
the first coating layer is about 50 kgf/mm^2 , and

a thickness of the second coating layer is about $15\text{ }\mu\text{m}$ to $30\text{ }\mu\text{m}$.

17. (currently amended): The ~~dispersion compensated~~dispersion compensating optical fiber according to ~~any one of claims 4, 5, and 11-16~~claim 4, wherein, in at least a wavelength range which is selected from 1.53 μm to 1.57 μm , a quotient, which is obtained by dividing the dispersion slope by the wavelength dispersion, is about 0.0026 nm^{-1} to 0.010 nm^{-1} .

18. (currently amended): The ~~dispersion compensated~~dispersion compensating optical fiber according to ~~any one of claims 4, 5, and 11-16~~claim 4, wherein, in at least a wavelength range which is selected from 1.53 μm to 1.57 μm , a quotient, which is obtained by dividing the dispersion slope by the wavelength dispersion, is about 0.0026 nm^{-1} to 0.041 nm^{-1} .

19. (currently amended): The ~~dispersion compensated~~dispersion compensating optical fiber according to ~~any one of claims 4, 5, and 11-16~~claim 4, wherein, in at least a wavelength range which is selected from 1.57 μm to 1.63 μm , a quotient, which is obtained by dividing the dispersion slope by the wavelength dispersion, is about 0.0022 nm^{-1} to 0.010 nm^{-1} .

20. (currently amended): The ~~dispersion compensated~~dispersion compensating optical fiber according to ~~any one of claims 4, 5, and 11-16~~claim 4, wherein, in at least a wavelength

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~~range which is selected~~ from 1.57 μm to 1.63 μm , a quotient, which is obtained by dividing the dispersion slope by the wavelength dispersion, is about 0.0022 nm^{-1} to 0.0035 nm^{-1} .